

ONLINE SUPPLEMENTAL MATERIAL

Title: Respiratory symptoms and radiologic findings in post-acute COVID-19 syndrome

Short title: Respiratory symptoms in post-acute COVID-19 syndrome

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Supplemental methods

List of symptoms evaluated at telephone consultation

General signs

- Anorexia
- Fatigue
- New hospitalization
- Weight loss

Respiratory signs

- New-onset dyspnoea
- Chest discomfort, chest pain
- New-onset cough
- Abnormal lung CT-scan since discharge

Neurologic signs

- Headache
- Paresthesia
- Anosmia
- Limb palsy

Cognitive signs

- Memory losses
- Slowness for reasoning, activity planification or problem solving
- Concentration, attention difficulties

Questionnaire administered during telephone consultation

Consent

Date of the teleconsultation: [date]

Consultant name: [Consultant name]

Patient identity: [First name] [Last name], [Date of birth], [Calculated age] years

Was admitted in the following departments: [admission department]

My name is [Consultant name] and I work at Bicêtre hospital. You were admitted in [admission department] for COVID-19 three months ago.

We call you today to organize your follow-up.

If you agree, I will ask you some questions that will be used to orientate your needs of medical follow-up specific to your COVID-19 infection.

May I continue this interview? [YES / NO]

If no, why? [text]

Is-it the patient him/herself? [YES / NO]

If not, who is the respondent [First name] [Last name], [phone number] and relationship to the patient [Spouse, Children, Sibling, Neighbor/Friend, Care giver]

Has the patient died since discharge? [YES / NO]

If yes, where has the patient died? [Home, Rehabilitation facility, Retirement home, Other hospital inpatient, Other]

[date of death] and [cause of death]

General inquiry

Do you speak French? [YES / NO]

If not, what language do you speak? [Text]

If not, can someone of your household assist you for the teleconsultation? [YES / NO]

If not, can someone of your household assist you for the day hospital? [YES / NO]

Do you have an insurance? [YES / NO]

On the [date of discharge], you were discharged from Bicêtre hospital. Where did you go? [Home, Rehabilitation facility, Retirement home, Other hospital, Other].

When did you get home? [date]

Are you working at the moment? [YES / NO]

If yes, since when? [date]

What do you do? [Text]

Did you have a significant medical event since your discharge? [YES / NO]

If yes, what was it? [text] When was it? [date]

If yes, were you admitted in a hospital for this event? [YES / NO]

If yes, did you consult a physician? [YES / NO]

If yes, whom? [Text]

If yes, did you do any laboratory or radiologic examination? [YES / NO]

Did you modify your usual treatment since discharge? [YES / NO]

Where do you live now? [Home, Relative, Rehabilitation facility, Retirement home, Other]

Were you living there prior to your hospitalization for COVID19? [YES / NO]

If yes, where were you living prior to your hospitalization for COVID19? [Home, Relative, Rehabilitation facility, Retirement home, Other]

How much did you weigh before your admission? [text]

How much did you weigh when you were discharged? [Text]

How much do you currently weigh? [Text]

Do you have a new and persistent anorexia since your hospitalization? [YES / NO]

Do you have a new and persistent fatigue since your hospitalization? [YES / NO]

Respiratory symptoms

In his/her chart, is the patient known to have had a pulmonary embolism during his stay? [YES / NO]

Do you feel abnormally breathless at rest or when active? [YES / NO]

If yes, did you feel the same prior to your hospitalization? [YES / NO]

Do you feel heaviness, pain or chest discomfort at rest or when active? [YES / NO]

If yes, did you feel the same prior to your hospitalization? [YES / NO]

Do you cough every day? [YES / NO]

If yes, was it the same prior to your hospitalization? [YES / NO]

Did you do a chest CT scan since your discharge as it may have been prescribed at your discharge? [YES / NO]

If yes, when [date]?

What was the result? [Normal/Abnormal]
Do you have a CD with the images? [YES / NO]

Neurological symptoms

In his/her chart, is the patient known to have had an abnormal brain MRI during his stay?
[YES / NO]

In his/her chart, is the patient known to have had an abnormal brain EEG during his stay?
[YES / NO]

Do you have a new and persistent anosmia since your hospitalization? [YES / NO]

Do you have new and persistent headaches since your hospitalization? [YES / NO]

If yes, on a scale from 1 to 10, 0 being no pain at all and 10 being the worst you could imagine, how much would you rate your headaches related pain? [1-10]

What medication do you take for your headaches? [Text]

Do you have new and persistent paresthesia since your hospitalization? [YES / NO]

Do you have new and persistent burn-like or electric-like pain since your hospitalization?
[YES / NO]

Do you have new and persistent loss of function of one of your limbs since your hospitalization? [YES / NO]

Cognitive disorder screening (Q3PC)

During the last 2 weeks, and significantly more than previously, do you:

- Have memory losses (for eg., Missed an appointment, forgotten a recent event, or misplaced a daily object)?

[Rarely: less than once a week; Sometimes: once a week; Often: Several times a week but not every day; Very often: Almost all the time]

- Feel like you were slower for reasoning, activity planification or problem solving?

[Rarely: less than once a week; Sometimes: once a week; Often: Several times a week but not every day; Very often: Almost all the time]

- Experience difficulties to concentrate or muster your attention (for eg., follow a conversation, read the paper or follow a tv program)?

[Rarely: less than once a week; Sometimes: once a week; Often: Several times a week but not every day; Very often: Almost all the time]

Elderly

Regarding corporeal hygiene, do you have:

- [Total autonomy / Partial help / Dependent]

- Deterioration since the hospitalization for COVID19: [YES / NO]

Regarding dressing, do you have:

- [Total autonomy for clothes choice and dressing / Autonomy for clothes choice and dressing, but requires help for / Dependent]

- Deterioration since the hospitalization for COVID19: [YES / NO]

Regarding bathroom use, do you have:

- [Total autonomy for undressing and dressing / Requires help for undressing or dressing / Dependent]

- Deterioration since the hospitalization for COVID19: [YES / NO]

Regarding locomotion, do you have:

- [Total autonomy / Partial help / Bedridden]
- Deterioration since the hospitalization for COVID19: [YES / NO]

Regarding continence, do you have:

- [Continent / Occasional incontinence / Incontinent]
- Deterioration since the hospitalization for COVID19: [YES / NO]

Regarding meals, do you:

- [Eats alone/ Requires help for service, cutting the meat or peeling a fruit/ Dependent]
- Deterioration since the hospitalization for COVID19: [YES / NO]

Does the patient have 3 or more deterioration in the score? [YES / NO]

Do you have any helping at home? [YES / NO]

Did you fell since your hospitalization? [YES / NO]

If yes, how many times? [Number]

If more than twice, are you under a physiotherapist care? [YES / NO]

Has the patient lost more than 5kg since discharge? [YES / NO]

Did the patient report an altered general state with association of asthenia, anorexia and weight loss? [YES / NO]

Nephrology

Do you have a known renal disease (e.g., renal transplant recipient, on hemodialysis or any renal chronic condition)? [YES / NO]

In his/her chart, what is the patient's last known creatinine level and glomerular filtration rate before discharge? [Text]

Ethics

We would like to inform you that your personal data, recorded during this teleconsultation may be used for medical research under the responsibility of the *Assistance publique-hôpitaux de Paris*. You can refuse now, or any time by contacting us, your primary doctor at the hospital or the data protection officer at the hospital.

Information was given and the patient did not express refusal: [YES / NO]

Table E1. Modified Medical Research Council (mMRC) dyspnoea scale

Grade	Description of breathlessness
0	I only get breathless with strenuous exercise
1	I get short of breath when hurrying on level ground or walking up a slight hill
2	On level ground, I walk slower than people of the same age because of breathlessness, or have to stop for breath when walking at my own pace
3	I stop for breath after walking about 100 yards or after a few minutes on level ground
4	I am too breathless to leave the house or I am breathless when dressing

Table E2. Nijmegen questionnaire

How often do you suffer from the symptoms listed? Please score each item from 0 to 4:
0: never; 1: rarely; 2: sometimes; 3: often; 4: very often

SYMPTOMS	SCORE (from 0 to 4)
Chest pain	
Feeling tense	
Blurred vision	
Dizzy spells	
To be confused, losing touch with environment	
Accelerated or deepened breathing	
Shortness of breath	
Constricted chest	
Bloated abdominal sensation	
Unable to breathe deeply	
Tingling around the mouth	
Cold hands or feet	
Palpitations	
Anxiety	
Total score	/64

A score > 22 suggests respiratory functional complaints.

Table E3. Multivariate analysis for the comparisons of patients with and without new-onset dyspnea.

	Estimate	95% CI low	95% CI high	Pr (> z)
Age	0.98	0.96	1.00	0.082
Chronic heart disease	0.27	0.04	1.01	0.098
Chronic kidney disease	0.17	0.01	0.86	0.093
Hospitalization in ICU	3.9	2.2	6.98	<0.001
Pulmonary embolism	2.48	1.12	5.35	0.022

CI : confidence interval ; ICU: intensive care unit ;

Table E4. Multivariate analysis for the comparisons of patients with and without lung fibrotic lesions

	Estimate	95% CI low	95% CI high	Pr (> z)
Age	1.04	0.99	1.09	0.114
Hospitalization in ICU	18.57	5.02	102.29	<0.001
Pulmonary embolism	6.56	2.26	21.02	0.001

CI : confidence interval ; ICU: intensive care unit ;

Table E5. Baseline and hospitalization characteristics of the patients who had fibrotic lesions at the ambulatory care visit according to the presence of dyspnoea

	<i>Available data</i>	All patients (33)	Patients with fibrotic lesions and new-onset dyspnoea (18)	Patients with fibrotic lesions without new-onset dyspnoea (15)	P-value
Demographic data					
Age, years	33	61.2±10.9	59.1±8.3	63.6±13.4	0.27
Women	33	9 (27.3%)	6 (33.3%)	3 (20.0%)	0.46
Body mass index, kg/m²	31	28.2±4.9	26.6±4.2	29.8±5.2	0.07
Smoking					
No (< 5 pack-years)	31	22 (71.0%)	14 (82.4%)	8 (57.1%)	0.29
Former (≥ 5 pack-years)	31	5 (16.1%)	2 (11.8%)	3 (21.4%)	
Active	31	4 (12.9%)	1 (5.9%)	3 (21.4%)	
Pre-COVID-19 Comorbidities					
Respiratory disease					
- COPD	33	1 (3.0%)	0 (0%)	1 (6.7%)	0.46
- Other than COPD	33	5 (15.2%)	1 (5.6%)	4 (26.7%)	0.15
Hypertension	33	12 (36.4%)	6 (33.3%)	6 (40.0%)	0.97
Chronic heart disease	33	3 (9.1%)	1 (5.6%)	2 (13.3%)	0.58
Diabetes	33	7 (21.2%)	4 (22.2%)	3 (20.0%)	1
Chronic kidney disease	33	1 (3.0%)	0 (0%)	1 (6.7%)	0.46
Declared psychiatric disorder	33	5 (15.2%)	3 (16.7%)	2 (13.3%)	1
Neurodegenerative disorder	33	2 (1.2%)	0 (0%)	2 (1.5%)	1
Alcohol misuse	31	1 (3.2%)	1 (5.9%)	0 (0%)	1
Active cancer	33	1 (3.0%)	1 (5.6%)	0 (0%)	0.48
Other immunosuppression	33	1 (3.0%)	1 (5.6%)	0 (0%)	1

Long-term dialysis	33	0 (0%)	0 (0%)	0 (0%)	1
HIV infection	33	0 (0%)	0 (0%)	0 (0%)	1
Solid organ transplantation	33	0 (0%)	0 (0%)	0 (0%)	1
Liver disease	33	0 (0%)	0 (0%)	0 (0%)	1
Pregnancy	33	0 (0%)	0 (0%)	0 (0%)	1
Hospitalization characteristics					
Total duration of hospitalization, days	33	34±25	36±29	33±19	0.78
Hospitalization in ICU	33	29 (87.9%)	17 (94.4%)	12 (80.0%)	0.31
Duration of ICU stay, days	29	24±21	25±25	22±15	0.66
High flow oxygen	33	18 (62.1%)	12 (70.6%)	6 (50.0%)	0.08
Intubation during hospitalization	33	18 (62.1%)	12 (70.6%)	6 (50.0%)	0.44
Duration of intubation, days	33	30±17	31±17	28±16	0.73
Pulmonary embolism	33	13 (44.8%)	6 (37.5%)	7 (53.8%)	0.61
Active anticoagulation (at full therapeutic dose)	33	15 (45.5%)	12 (66.7%)	3 (20.0%)	0.02
Specific treatments during hospitalization					
Azithromycin	33	12 (36.4%)	10 (55.6%)	2 (13.3%)	0.03
Tocilizumab (anti-IL-6)	33	12 (36.4%)	6 (33.3%)	6 (40.0%)	0.97
Hydroxychloroquine	33	5 (15.2%)	4 (22.2%)	1 (6.7%)	0.35
Corticosteroids	33	3 (9.1%)	1 (5.6%)	2 (13.3%)	0.58
Lopinavir/ritonavir	33	2 (6.1%)	2 (11.1%)	0 (0%)	0.49
Anakinra (anti-IL-1RA)	33	3 (9.1%)	0 (0%)	3 (20%)	0.08
Remdesivir	33	0 (0%)	0 (0%)	0 (0%)	1

Values are expressed as the mean±SD, or as number and frequency. The P-values refer to a comparison between patients with and without fibrotic lesions

COPD: chronic obstructive pulmonary disease; HIV: human immunodeficiency virus; ICU: intensive care unit

Table E6. Characteristics of the patients with fibrotic lesions at the ambulatory care visit according to the presence of new-onset dyspnoea

	Available data	All patients (33)	Patients with fibrotic lesions with new-onset dyspnoea (18)	Patients with fibrotic lesions without new-onset dyspnoea (15)	P-value
Time from hospital discharge to outpatient clinic, days	33	82±26	82±28	82±26	0.98
Assessment at ambulatory care visit					
mMRC scale score for dyspnoea	33				0.006
- 0		15 (45.5%)	4 (22.2)	11 (73.3)	
- 1-2		14 (42.4%)	12 (66.6)	2 (13.3)	
- 3-4		4 (12.1%)	2 (11.1)	2 (13.4)	
New-onset cough	33	5 (15.6%)	4 (23.5%)	1 (6.7%)	0.34
6-Minute walk test, m	33	451±107	457±74	445±138	0.78
Pulmonary functional tests					
FEV1, %pred	31	86.2±20.0	79.3±14.4	94.6±23.0	0.04
FEV1/VC, %	31	82.3±6.4	82.9±5.8	81.5±7.2	0.55
VC, %pred	31	80.6±20.0	73.9±15.6	88.7±22.2	0.04
TLC, %pred	31	74.1±13.7	68.6±12.0	81.3±12.8	0.01
DLCO, %pred	29	73.3±17.9	71.2±21.1	75.8±13.4	0.48
DLCO < 70%	29	12 (41.4%)	8 (50.0%)	4 (30.8%)	0.51
Nijmegen score > 22	33	2 (6.3%)	2 (11.8%)	0 (0%)	0.49
LVEF ≤ 50% on echocardiography	26	5 (19.2%)	4 (25.0%)	1 (10.0%)	0.62

Values are expressed as the mean±SD, or as number and frequency. The P-values refer to a comparison between patients with and without fibrotic lesions